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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,640	06/19/2001	Nicholas F. Borrelli	SP01-087	2658

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CORNING INCORPORATED  
SP-TI-3-1  
CORNING, NY 14831

EXAMINER

CURTIS, CRAIG

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/884,640

Applicant(s)

BORRELLI ET AL.

Examiner

Craig H. Curtis

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 9-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-15 is/are allowed.
- 6) ☒ Claim(s) 16-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### ***Disposition of the Instant Application***

- This Office action is responsive to Applicants' Amendment A filed on 13 June 2003 and made of record in the file as Paper No. 7.
- By this amendment, Applicants have canceled claims 1-8; amended claims 9, 15, 16, and 20; and newly added claim 25.
- Claims 9-25 are currently pending in the instant application.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

*(e) the invention was described in-*

*(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or*  
*(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).*

1. **Claims 20-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Kurtz et al. (6,532,111).**

With regard to claim 20, Kurtz et al. disclose the invention as claimed--a wire grid polarizer, comprising:

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a substrate (305) which is transparent at a selected wavelength (inherent);  
an anti-reflective (in the same sense as that disclosed in the instant invention) wire grid structure (see, e.g., 310 in Fig. 5b) formed on a surface of said substrate, the anti-reflective wire grid structure comprising a dielectric layer sandwiched between two metallic layers (see col. 9, ll. 47-51), the dielectric and metallic layers acting in concert to suppress reflection of rejected polarization (again, due to like structural limitations, in the same manner as that disclosed in the instant invention).

With regard to claim 21, please see col. 3, ll. 44-48.

With regard to claim 22, please see Fig. 5 b.

With regard to claim 23, please see col. 16, ll. 53-55 (i.e., claim 6 in Kurtz et al.).

With regard to claim 24, please see col. 16, ll. 56-58 (i.e., claim 7 in Kurtz et al.).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**2. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurtz et al. (6,532,111) in view of Siroki (5,757,538).**

Kurtz et al. disclose the claimed invention as set forth above EXCEPT FOR an additional teaching wherein said substrate is made of a magneto-optical garnet material.

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Siroki et al., however, expressly disclose a wire grid polarizer (see Fig. 3) having a substrate (Id. at 1) comprised of magneto-optical garnet material (col. 2, ll. 40-43). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the invention of Kurtz et al. such that said substrate of said wire grid polarizer be made of magneto-optical garnet material, as expressly taught by Siroki et al., for at least the purpose of permitting said wire grid polarizer to function as a Faraday rotator element in an optical isolator.

**3. Claims 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siroki (5,757,538) in view of Moshrefzadeh et al. (6,391,528) and Kurtz et al. (6,532,111).**

With regard to claim 16, Siroki discloses the invention as claimed--an integrated optical isolator (see Fig. 2), comprising:

a magneto-optical garnet substrate (see 1 in Fig. 3; also see col. 2, ll. 40-43) having a first surface and a second surface (see Fig. 3);

a first wire grid structure (polarization grating 2a in Fig. 3) formed on the first surface; and

a second wire grid structure (polarization grating 2b) formed on the second surface and rotated an angle [*read: rotated at* an angle] with respect to the first wire grid structure (see Fig. 3)--**EXCEPT FOR** express disclosure of the following additionally recited limitations:

said first and second surfaces being coated with an anti-reflection material; and

said first wire grid structure comprising a dielectric layer sandwiched between two metallic layers, the first wire grid structure being adapted to suppress reflection of rejected polarization.

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Moshrefzadeh et al., however, expressly teach wherein an antireflective coating may be disposed on one or both sides (*read*: on first and second surfaces) of a substrate of a wire grid polarizer (see col. 4, ll. 47), and Kurtz et al. expressly teach a first wire grid structure (310) comprising a dielectric layer (e.g., 340, 342, 344) sandwiched between two metallic layers (e.g., 320, 322, 324), the first wire grid structure being adapted to suppress reflection of rejected polarization (at least to the extent that the reflection efficiency of s-polarized light is  $\sim 91\%$ , not  $\sim 100\%$ : see col. 10, ll. 49-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the integrated optical isolator of Siroki not only such that both of said first and second surfaces of said magneto-optical garnet substrate be coated with anti-reflection material, as expressly taught by Moshrefzadeh et al., but also such that said first wire grid structure comprise a dielectric layer sandwiched between two metallic layers, said first wire grid structure being adapted to suppress reflection of rejected polarization, as expressly taught by Kurtz et al., for at least the purpose of, with regard to the anti-reflection teaching, enhancing the percentage of non-rejected light (i.e., p-polarized light) that is transmitted by said magneto-optical substrate, and, with regard to the dielectric layer sandwiched between two metallic layers teaching, improving the overall contrast via resonance effects.

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### ***Allowable Subject Matter***

4. **Claims 9-15 are allowed.**

### ***Reasons for Allowance***

5. **The following is the Examiner's statement of reasons for allowance:**

The claims are allowable over the prior art for at least the reason that the prior art fails to teach or to reasonably suggest *a method for fabricating a wire grid polarizer, comprising, inter alia, the following steps: depositing a resist film of said wire grid material; bringing a mold with a wire grid pattern in contact with said resist film and compressing the mold and resist film together so as to emboss said wire grid pattern in said resist film*, as set forth in the claimed combination.

6. **Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."**

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*Conclusion*

7. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



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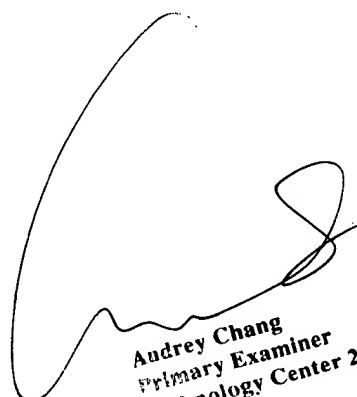
### ***Contact Information***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Curtis, whose telephone number is (703) 305-0776.

The facsimile phone number for Art Unit 2872 is (703) 308-7722.

Any inquiry of a general nature regarding to status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.

*Craig H. Curtis*  
Craig H. Curtis  
Group Art Unit 2872  
27 August 2003

  
Audrey Chang  
Primary Examiner  
Technology Center 2800